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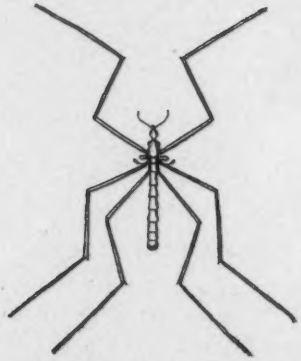

Limnophila aspidoptera Coquillett.

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XVII. JUNE, 1906. NO. 6.

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Ruins of the Academy of Sciences, San Francisco, Cal.

BY W. G. WRIGHT.

(Plate IX)

This view was taken during a rainstorm after the fire of April 18, 1906, and is more of a *side view* than a front view. The street along which men are walking is Market Street.

The *main entrance to the Academy* is the arched opening under the left electric light.

The most of the *front of the building* is fallen down, but some three or four windows of the front part are shown in the photo.

The *Museum Building* is at the left, the walls mostly standing nearly intact, but it is licked clean by fire, inside, and probably is unfit for rebuilding.

The space in front of, or at the right of the Museum Building, and between it and Market Street, was occupied by fine stores on the ground floor, and by suites of offices in the upper stories; from the rental of these stores and offices the Academy received its chief income.

RUINS OF THE ACADEMY OF SCIENCES, SAN FRANCISCO, CALIFORNIA.

On some New Species of Geometrid Moths from Arizona and California.

By George W. Taylor, Wellington, B. C.

The forms, described in the present paper, are all of them apparently new to science. The first named is in the collection of the United States National Museum, and for the privilege of examining and describing it I have to thank Dr. Harrison G. Dyar. The other forms described are all in my own cabinet.

1. **Melemaca virgata** n. sp.

This is a very beautiful insect which I thought at first might be *M. magdalena* Hulst, but the arrangement of the lines on the fore-wings is not the same, and Dr. Dyar, who has kindly sent me a rough sketch of the type of *magdalena*, assures me that it is not that species. Front and thorax pale yellow, palpi a little darker. Ground color of wings orange yellow. Fore-wings with two bands or stripes, one (outer) running from the apex of the wing to the middle of the inner margin, and the other (subcostal) from the junction veins 7 and 8 to the base of the wing. The color of the first-named stripe is olive greenish, bordered with a narrow deep red line on the inner side and by a conspicuous white stripe on the outer side. Towards the apex of the wing the red line becomes much wider and the olive line narrower. The subcostal stripe is bordered below by a red line and above by a white band, which is followed by a red stripe, the costa itself being of the ground color of the wing. The submarginal space is *orange*, becoming red at the tornus; fringe pale yellow. The hind-wings are pale orange, the color deepening from base outwardly until a reddish line is formed running in a regular curve from the apical angle to the middle of the inner margin. This is followed by a paler shade, and again towards the margin the color deepens. Fringe paler as on the fore-wings. Beneath, the color is paler, the lines of the fore-wings are reproduced faintly and the extreme apex is bright red. The hind-wings are quite pale. No discal points visible either above or below.

Expanse 28 mm.

Type.—One ♂. Huachuca Mts., Arizona, July 16–23. In U. S. Nat. Museum.

2. **Hydriomena multipunctata** n. sp.

Palpi rather large and stout, black on outside, grey on inner side and at tip. Front dark grey. Thorax concolorous with fore-wings. Fore-wing with costa almost straight for three-fourths of its length, then sharply curved so as to make a right angle with the outer margin. Color of fore-wing light fawn. In the central area the ground color is overlaid with a smoky shade, forming a band across the wing but not limited by lines.

All veins dotted with alternate white and dark brown dots as in the submarginal area of fore-wing in *Zenophleps lignicolorata*. A dark brown discal dot and faint indications of two or three parallel lines in the central band. A marginal row of black dots, one dot on each side of each vein, fringe concolorous with wing. Hind wings smoky grey, darker outwardly. In the submarginal area the veins are dotted as in the fore-wings. A small brown discal dot and marginal black dots as on the fore-wings. Under surface of all wings darkened with smoke color, and on the outer third the veins are dotted as above. The marginal black dots are also reproduced. Expanse 37 mm.

Described from one ♂. Mountains near Claremont, California. Collected by Prof. C. F. Baker, who has generously placed the specimen in my collection.

This species has a slight resemblance at first sight to *Zenophleps lignicolorata*, but it may be at once distinguished by the thickened and flattened antenna of the male. In *Zenophleps* the antennæ of the males are pectinated.

There is not any other North American Geometer known to me to which *H. multipunctata* bears any near resemblance.

3. **Hydriomena magnificata** n. sp.

This is a species somewhat resembling *Hydriomena speciosata* Packard but very much larger. The type specimen has an expanse of 45 mm., while *speciosata* ranges from 35 to 40 mm.

The prevailing colors are black and green, but in the type (which has been relaxed) the green tints have faded, as such tints generally do, to a light clay color.

Palpi long, porrect, green, with spots of black, the extreme tip green. Front green. Thorax green with black spots at sides and a conspicuous black dorsal spot. Abdomen silky grey with black dorsal spots on the posterior segments, the base of the terminal tuft being also conspicuously black. The fore-wings green with black blotches, which appear to be parts of six broken transverse lines. The extreme base of the wing is also black. The first three lines are intradiscal and are separate and conspicuous on the costa, but are united with an irregularly-shaped blackish blotch, enclosing a green spot, on the inner margin. The fourth line is extradiscal and is marked by about five narrow black blotches on the veins. It does not reach the inner margin. The fifth line is in the submarginal space and consists of a square black blotch on the costa, a much larger one between veins 6 and 4 and a third extending irregularly from vein 3 to the outer angle of the wing. The sixth line forms an irregular margin to the wing. The fringe is pale outwardly, darker at base and

cut with distinct black pencils of scales at end of veins, a few white scales being on each side of the pencils of black ones. The hind-wings are clear grey with a few dark marginal cloudings; fringe pale, slightly marked with black at ends of veins. Beneath, the markings of the upper surface are rather distinctly reflected.

Described from one ♂. Cochise Co., Arizona, March 4th.

It is possible that this very handsome species may be in some collections as *speciosata* Packard, but the true *speciosata* is, as pointed out above, not nearly so large and has moreover an unspotted thorax and abdomen, and lacks the reflected markings on the under side of the primaries.

4. **Macaria quadrifasciata** n. sp.

Male antennæ dentate fasciculate, more like *Philobia* than *Macaria*. Palpi and front dark yellow ochre. Wings, thorax and abdomen pale yellowish fawn, rather thickly covered with specks of a darker tint. Fore-wing crossed by four lines. The basal curved out from costa then straight to inner margin. Intra- and extra-discal lines are parallel to each other and to the basal line. The distance between the basal and intra-discal is only half as great as that between the intra- and extra-discal lines. The submarginal line is quite straight, running from costa about 1 mm. from apex to the internal angle. Hind wings with three lines (basal obsolete), no discal spot, fringe concolorous with wings. Beneath, all the markings are reproduced lines rather diffuse; the extreme margin of wings marked by fine black points between the veins. Expanse 32 mm.

Described from one ♂. Cochise Co., Arizona, July 8, 1904. The type was badly broken in a trip to Washington and back, but the species seems so distinct that I venture to describe the fragments.

The type specimen has lost the hind tibia, I cannot therefore be quite sure that the species belongs to *Macaria*. I think, however, that I am right in so placing it.

5. **Enemera simularia** n. sp.

Expanse 38 mm.

This moth is smaller than Californian or British Columbian specimens of *E. juturnaria*, but about the same size as specimens of that species from Arizona.

It is very similar to *juturnaria* on the upper side, the main difference being in the single extradiscal line. In *juturnaria* this line leaves the costa at about two-thirds distance from

base. It curves regularly outward, being most distant from base at vein 4, thence it curves inward to the inner margin.

In *simularia* this line commences almost exactly in the middle of the costa proceeding towards the centre of the outer margin in an almost straight line to vein 5, then turning at an obtuse angle and running in a straight line to the inner margin.

On the under side the difference is greater. An extradiscal line divides each wing into two parts. The outer half of each wing is very dark—on the hind wings nearly black.

The course of the extradiscal line on the hind wings is peculiar. The ends of the line are not at the middle of the costa and the middle of the inner margin. From each end the lines curves regularly towards outer margin, forming an acute angle on vein 5, recalling the median line on the underside of secondaries in *Cœnocalpe annellata* or *Marmopteryx marmorata*.

Types 1 ♀ and 1 ♂ in poor condition. Pasadena, California. Mr. F. Grinnell, July 22 and 29, 1903.

6. **Eupithecia helena** n. sp.

Palpi long and bushy, white, with a few black scales, tip black. Front, head and thorax dull white. with slight ochre tint. Abdomen same color, but with rather more of the ochre tint on the anterior segments; the last two segments greyish. Dorsal tufts small, black. Fore wings dull white, overlaid with brownish scales. Basal area blackish. Basal line double. Intradiscal line double, distinct on costa, faint across the wing, regularly curved, parallel with basal line. The space between basal and intradiscal lines is occupied by a broad, rusty brown, regularly curved band. Extradiscal lines double, white, wavy, very conspicuous on the costa, divided by a fine brown line; the inner white line is marked on inner side on each vein by a black dot. The course of these extradiscal lines is straight from the costa to vein 7, then evenly rounded out to vein 2, then in 2 or 3 scallops to the inner margin. Discal spots large rusty brown. Beyond the extradiscal line there is a rusty brown band which is almost continuous from costa to the inner margin. This is bounded by a distinct, white, wavy, submarginal line. The marginal space is dark grey. Marginal line distinct, black, hardly interrupted at the veins. Fringe long, color of the wings, marked at base with faint brown spots. Hind wings, color of fore wings, crossed by 7 or 8 dusky grey indistinct lines. The outermost being the most prominent. A submarginal white line and a marginal black one as on fore wings. Discal spot lengthened, blackish. Beneath, white, with indications of all the lines as alone. The rusty brown bands of the upper side show as dark grey bands below, and there is in addition a rather

conspicuous dark grey line marking the inner edge of the extradiscal lines. In the hind wings there are two extradiscal dark grey bands, the other lines being represented by faint indications only. Discal spots on all wings black, diffuse; marginal lines black, very distinct. Legs greyish white, the anterior pair banded with black, posterior pair wanting. Expanse 26 mm.

Type.—One specimen from Pinal Mountains, Arizona, July 9, 1900.

In coloring this species recalls *E. nevadata* Packard, but in the present species the large costal blotch over the discal spot which is so conspicuous in *nevadata* and its allies is wanting. The wings in *helena* are also much rounder, the outer margins being very full. In the shape of the wings and the arrangement of the markings, but not in color, this species rather nearly agrees with *E. togata* (Hübner) of Europe.

Autolyca doylei, a new Phasmid from So. America.

By A. N. Caudell, Washington, D. C.

Male.—Elongate, black, not shining, unarmed; the entire insect, including the legs and antennæ, covered with inconspicuous, fine, short black hairs. Head as broad as long, the posterior half of the top and sides yellowish; antennæ black, longer than the body. Pronotum about one-fourth longer than broad; mesonotum about one and one-half times as long as the pronotum and but slightly longer than the metanotum, including the intermediary segment, which is not quite as long as the metanotum proper. Abdomen apically much swollen and, in the only specimen seen, curved strongly upward; segments 1–6 quadrate or barely elongate, the three terminal segments transverse; the scoop-shaped ventral process of the seventh segment is broad and reaches to the tip of the abdomen; cerci stout, clavate and incurved, as long as the terminal segment of the abdomen and descending from beneath that segment at nearly right angles. Legs black, except the ventral surface of the tarsi, which is yellowish brown; anterior femora not noticeably curved at the base; all the tibiæ areolate below and slightly longer than their respective femora and not quite twice as long as their tarsi; all the femora, as well as the tibiæ, dully and inconspicuously carinate, the posterior femora reaching nearly to the apex of the sixth abdominal segment. Length:—pronotum, 4 mm.; mesonotum, 5.5 mm.; metanotum, including the intermediate segment, 5 mm.; anterior femora, 13 mm.; intermediate femora, 10.5 mm.; posterior femora, 15 mm.; width, head, 3.5 mm.; pronotum, 3.5 mm.; basal segment of the abdomen, 3 mm.; apical segment of the abdomen, 4.25 mm.

Type No. 9629, U. S. Nat. Mus.

One male, taken by C. B. Doyle, at an altitude of 2950 meters at Tierra Adentro, Central Cordillera, Dept. of Cauca, Colombia, South America, headwaters of the Palo River, in January, 1906.

This interesting insect, which is named after the collector, is easily distinguished from the other members of the genus by the elongate form and especially by the coloration of the head.

A Rock-boring Mite.

By Nathan Banks.

In the fall of 1904, Prof. J. H. Comstock sent me some pieces of rocks taken from a limestone cliff that is moistened by the fall of water. The surface contained numerous small cavities or pits of varying sizes. Most of them had a narrowed orifice, and within each pit was found a mite, approximately of the size of the pit. Although, of course, a mite of such habits must be called "*petrophagus*," I have no idea that rock forms any part of its diet. The surface of the stone to a short depth is somewhat softened, doubtless by the action of the water, and it is probable that in the minute holes and passages of this softened area there is growing some tiny plant-organism that forms the food of this cave-digging mite. From all appearances the cavities are caused by the mite, and increase in size with the growth of the acarian. Possibly the mite has some secretion that aids in the destruction of the stone.

Remarkable as are the habits of this mite, its structure, save that it belongs to a rather peculiar genus, is not exceptional. This habit is the necessary consequence of the conditions of its existence, for if the mite should try to live free on the surface of the rock it would be washed away by storms. To escape, therefore, the ravages of the elements it takes to the cyclone cellar. Migration must be performed over the surface of the stone, but it is probable that the young issue at a season when the stone is not subject to heavy storms.

On microscopic examination the mite is seen to belong to the family Oribatidæ, or beetle-mites, and to the genus *Scutovertex* of Michael. We have, at least, one other species of this

genus in our country, the *S. marinus* Banks, that occurs on the surface of boulders between tide-marks along the Long Island shore. *S. marinus* is usually found in small depressions of the stone, but forms no cavities; and when the tide is out one can find a few wandering over the rock. Four species of *Scutovertex* are known in England, one was found in moss; one on lichen near the seashore, and two on algæ in freshwater pools near the seashore. Michael has described a species as taken from marine algæ at Terra del Fuego.

The new species I describe as follows:

Scutovertex petrophagus n. sp.

Rather uniform dark brown, a pale spot on middle of base of abdomen above. Body moderately elongate, roughened above; median area of cephalothorax with transverse ridges. Pseudostigmatic organs short, clavate. A ribbed lamella-like area around base of abdomen. Abdomen above with scattered rugosities and 3 more or less definite stripes of interlaced ridges; at apical margin with 4 short, subequal stiff bristles each side. The legs are rather long and heavy, the femora obliquely roughened above near tips, and also on the trochanters; tarsi very short, and more hairy than other joints, but one claw to each leg. Venter finely and irregularly rugose, the coverings of the apertures being longitudinally rugose. The genital opening is about as broad as long, and scarcely its length in front of the larger and more elongate anal opening. The immature stages have a transversely corrugate dorsum. Length 4 mm.

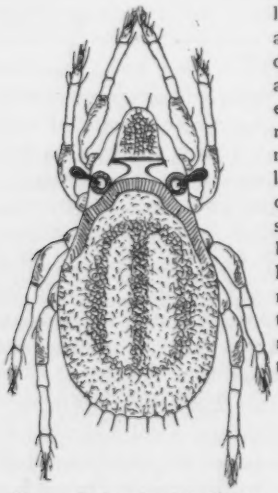


Fig. 1.—*Scutovertex petrophagus.*

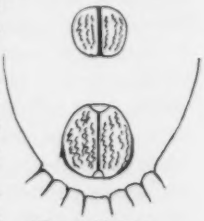


Fig. 2.—Venter.

Fig. 3.—Tarsus and claw.

Inhabits cavities in the surface of wet rock. Traghanic Falls, near Ithaca, N. Y. This genus is best separated from *Carabodes* by the fact that the tibiæ of legs are not pedicellate.

New Species of Butterflies.

By Andrew Gray Weeks.

Ecesia klagesii sp. nov. Expanse 2.10 inches.—Head above black, with a white dot above each eye and one betwixt the bases of the antennæ. Antennæ black. Club black above, beneath brown, with tawny tip. Thorax and abdomen black or very dark brown above, beneath tawny brown.

Upper side of fore wing tawny brown, with black markings. Costa black. Half way up the costa a black band runs downward, across the end of the discoidal space to the first submedian nervule, where it suffuses toward hind margin. Beyond this, on apical side, is an area of ground color of the same width. The apical area, representing one-fourth of the total wing area, is black, with a tawny brown dash in its central portion. In some specimens, owing to lack of any suffusion, this dash may be called a well defined spot. The hind margin is bordered with black from apex down to the second submedian nervule, and in some specimens this extends to lower angle. The inner marginal area is dashed with black. The median nervure is heavily black from the base up to the second submedian nervule.

Upper side of lower wing tawny brown, with black markings. A black line one-sixteenth of an inch wide extends from the base of the wing along the costa nearly to the upper angle. The hind margin is slightly dentated or wavy, and has a black border one-sixteenth of an inch wide, broadening somewhat toward anal angle. From the inner margin near the base of the wing a line of interspacial black spots extends across the wing, curving upward to the upper angle. These are, in some specimens, quite indistinct, owing to being dusted with tawny scales.

Under side of fore wing is governed by the markings of the upper surface. The black portions are not so dense and suffused into the ground color. The band of ground color running from costa to hind margin is more yellow, and the apical area is tawny brown. At the apex is a patch of dull yellow, crossed by a dark line which extends down to the lower angle one-sixteenth of an inch within the hind margin.

On the under side of the hind wing, the black line noted on the upper surface, is repeated. Below this, the area to the row of black spots is dull yellow. Below this spot the area to the black marginal border is light tawny. In the black hind marginal border is a wavy line extending from the anal angle through four interspaces.

Hab.—Suapure, Venezuela.

Variations.—The chief variations are due to the suffusing of the ground color on the black portion or *vice versa*. While some specimens are more or less suffused, thus have the markings distinctly outlined, I have one specimen in which the

row of black spots on lower wing is totally wanting on the upper surface, although it is slightly in evidence on the under surface. This species could not be found in the large collections of this country, nor the British Museum, nor has any description by a previous author been brought to light.

Ithomia hamlini sp. nov. Expanse 2 inches.—Head black, with a yellow dot behind the eyes, also one between the antennæ. Eyes surrounded by a yellow thread. Antennæ dark brown, merging to light brown towards club. Club black, with brown tip, Thorax above black, with a yellow collar and a yellow spot at junction of each costa; beneath, lemon yellow. Abdomen above black; beneath, lemon yellow. Legs black.

Upper side of fore wing mostly transparent, marked with brownish black and yellowish transparent areas. Costa black, edged with brown along discoidal space. Discoidal space transparent, with a yellowish tinge. From the base of wing a dark club-shaped dash extends upward to centre of discoidal space. From the centre of costa a broad brownish black band extends downwards across the end of discoidal space, terminating at hind margin just above the lower angle; the nervures and nervules in this band are black. Outside of this band is a broad transparent area, heavily dusted with lemon-yellow scales near costa. The apical area and hind marginal area are brownish black, with a slight suggestion of lighter spots in the interspaces near margin. The median nervure is brown. The inner marginal area below the median nervure is brown suffusing to dense black toward inner margin.

The upper side of hind wing has the same colors. The hind margin is bordered with a sixteenth of an inch brownish black border, bearing suggestions of lighter spots in interspaces. Inside of this, toward the base of the wing, is a band of brown extending from the upper angle downward, and swinging across the wing to the anal angle parallel to hind margin. Still nearer the base, bordering this brown band, a darker band runs across the wing horizontally, turning upward to the costa well outside the discoidal space. The discoidal space and the area surrounding it is transparent, slightly dusted with brown scales. The nervures and nervules are brown.

The under side of both wings is the same as upper surface, except that the interspacial light spots along the hind margins are more distinct, being very prominent on the lower wing.

Hab.—Suapure, Venezuela.

Variations.—The sixty specimens in my collection show no variation in size. The markings are identical in shape and location, but show considerable variation in their density and tendency to suffusion. The typical specimen above described is a fair average.

Thecla madie sp. nov. Expanse 1.10 inches. *Female.*—Head, palpi, thorax and abdomen above, dark mouse color; beneath, light mouse color. Antennæ black, with white annulation at base of each joint. Club black, with tawny tip. Legs light mouse color, with white annulations

Upper side of fore wing dark mouse color. The basal area slightly blue.

Upper side of hind wing dark mouse color. Basal area light blue, dusted with mouse colored scales, shading off to mouse color toward upper angle and hind margin. From the lower submedian nervule, extends a delicate tail one-eighth of an inch long, tipped with white, and above it a similar but shorter tail extending from the submedian nervule. From anal angle a delicate white thread, following contour of hind margin, extends toward upper angle, disappearing almost midway. At anal angle is a tawny dot. Inner margin light gray.

Under side of fore wing light mouse color. A conspicuous dark line bordered with a white thread on outer side extends downwards from near costa to submedian nervule. The hind marginal area, for one-sixteenth of an inch inward, is somewhat lighter than ground color, and has suggestion of darker half circles in the interspaces. The inner margin is lighter than ground color, gradually shading into it.

Under side of hind wing light mouse color. A dark line, dusted with tawny and bordered by a white thread on its outer side, extends from centre of costa to centre of second submedian nervule, then turning upwards to centre of inner margin. This line is jagged, with angles in each interspace, and forms a continuation of the line on the fore wing, but more fully developed. There is a tawny spot at anal angle, blackish at angle. In interspaces, between the two tails, is another spot of lighter shade. The white marginal thread of the upper surface is repeated. The light hind marginal area of under side of fore wing is continued on hind wing.

The hind margins have a slight fringe of the ground color.

Hab.—Suapure, Venezuela.

This species could not be found in the larger collections in this country, nor in the collection of Druce, the British Museum, etc. It resembles *T. cleon* Fabr.

Thecla carteri sp. nov. Expanse .80 inch.—Head, thorax and abdomen nearly black above, with a few light blue hairs. Beneath, gray. Palpi white. Antennæ black, with indistinct white annulations at base of each joint. Club above, black; below, tawny. Legs gray.

Upper side of fore wing nearly black. The space within a line drawn from a point on inner margin just inside lower angle up to centre of median nervure and thence to base, is light blue.

Upper side of hind wing light blue at base, nearly white as it approaches costa and hind margin. There is a blackish border along costa, extending half way down hind margin. At end of submedian nervule is a deli-

cate thread-like tail, one-eighth of an inch long, tipped with white. Hind margin has a delicate gray fringe. The edge of hind margin has a fine whitish line, inside of which is a black thread. The submedian interspaces show the dark interspacial markings of the under side. Inner margin white.

Under side of fore wing grayish white, dusted with brown towards base. One-sixteenth of an inch within hind margin is a wavy line of blackish brown extending down to inner margin. The space between this and the margin is light gray, with prominent interspacial triangular spots of blackish brown, one-sixteenth of an inch within this line is another line extending from costa down to second submedian nervule, the intermediate space being nearly white. There is another similar line running across the end of the discoidal space only. From this line the dusting of darker color increases towards the base.

Under side of hind wing the same ground color. At centre of costa is a lunule, brown on its outer edge, white within with a black spot at its centre. From upper angle a brown line extends straight across the wing to the centre of the inner margin. Outside of this is a space one-sixteenth of an inch wide, of light gray. Outside of this, the area to hind margin is dark brown, broken by a series of interspacial lighter brown semicircles near the margin, the interior portion these semicircles being nearly black.

The hind margins have a thread of white.

Hab.—Suapure, Venezuela.

This species is nearly identical with *T. argiva* Hew., which has no tails. It is also near *T. tadita* Hew., which is in the Hewitson collection.

Thecla hosmeri sp. nov. Expanse .95 inch.—Head, thorax, abdomen above, black. Below gray. Palpi gray. Antennæ black, with microscopic white annulations at base of each joint. Club black.

Upper side of hind wing black, with slaty lustre. At the end of submedian nervule is a short thread-like tail. Below this, at end of second submedian nervule, is another longer tail, both black, with a white tip.

Under side of fore wing brownish slate color. From a point on costa, two-thirds distance to apex, runs a brick-red line, bordered on its outer edge with a white thread, down to submedian nervule.

Under side of hind wing brownish slate color. The brick-red line of fore wing is continued running downwards parallel to hind margin and meeting inner margin just above the anal angle. In the four lower interspaces this line becomes jagged, forming a series of semicircles. Outside of the first two of these semicircles are patches of brick-red, the lower one having a black point on its lower edge. At the angle is another brick-red patch or spot, smaller than the others, with a black point on its lower edge. Just within the hind margin, running from anal angle to the median nervure is a white thread.

Wings have a slight fringe of the ground color.

Hab.—Suapure, Venezuela.

This species is closely allied to *T. pisis* Godm. and to *T. gargophia*. Described from six specimens in my collection.

Euselasia tysoni sp. nov. Expanse 1 inch.—Head, thorax and abdomen above, mouse color. Below, gray. Palpi white. Antennæ mouse color, with minute white annulations at base of each joint. Club black, with whitish suffusion at base. Legs light tawny brown.

Upper side of fore wing mouse color.

Upper side of hind wing mouse color. Hind margin strongly dentated. At end of submedian nervule is a slight tawny spot.

Under side of fore wing light tawny brown. From a point just beyond centre of costa runs a tawny line across end of discoidal space, down to lower submedian nervule. Hind margin bordered with tawny, with a suggestion of a white thread. From a point on inner margin one-sixteenth of an inch from lower angle runs a black thread or dash upwards to submedian nervule. The space between this and hind margin is whitish near the angle.

Under side of hind wing light tawny brown. Hind margin bordered with tawny, with a white thread in interspaces. Within this tawny border, near base, is a series of silvery-white elongated spots forming a prominent marginal border. The inner side of these spots is lined with black. The tawny line near centre of fore wing is continued, being parallel with hind margin and curving upward to centre of inner margin.

Hab.—Suapure, Venezuela.

There is one specimen of this in the Druce collection, but unexamined.

Charis suapure sp. nov. Expanse .95 inch.—Head, antennæ, thorax and abdomen above blackish brown. Beneath, somewhat lighter. Legs the same.

Upper side of fore wing dark blackish brown. In discoidal space, near base, is a blackish spot, repeated in space below. Beyond this is another similar spot in the discoidal space, repeated and somewhat larger in submedian space below. Beyond this is a third spot in the discoidal space, but this last is not repeated in space below. Outside of this spot is a broad blackish line of connecting interspacial spots from costa across the end of discoidal space, turning at median nervure and running parallel to hind margin down to inner margin, near the center of the wing area. Beyond this is an area of the ground color and then a prominent orange line or band running from a point just above the centre of costa towards hind margin, turning at median nervure and running down to inner margin one-sixteenth of an inch in from hind margin, forming nearly a semicircle. This line, the prominent feature of the markings, is broader at costa and terminates in a point at inner margin. The apical area, outside of this

and the hind marginal area, is the same color as the disdoidal spot, blackish.

Upper side of hind wing is the same, except that the spots suffuse, nearly forming a band. The orange band of fore wing is continued, but narrower, extending from upper angle to anal angle parallel to hind margin. The inner margin is of the ground color.

The wings have a slight fringe of the ground color.

The markings of the under side of both wings are similar to those of the upper surface, although slightly lighter.

Hab.—Suapure, Venezuela.

This species resembles *C. cæcias* Hew.

Methonella carveri sp. nov. Expanse 1.50 inches. *Male.*—Head black. Antennæ black. Club black, with brown tip. Thorax above black, with yellow hairs at base of wings; beneath, orange. Abdomen above black; beneath, orange. Legs black.

Upper side of fore wing orange, black and yellow. Costa black. The basal area within a line drawn from near centre of costa diagonally across the discoidal space to a point one-quarter of an inch within the margin, thence downwards parallel to hind margin to inner margin is orange. The apical and hind marginal areas, outside this line, are black. In the centre of the black apical area, running from costa diagonally across it nearly to hind margin is a yellow band. Below the end of this, in the margin area, is a yellow spot, with a suggestion of a smaller one below it. Inner margin orange.

The upper side of hind wing is of the same orange. Costa orange. From the base a black dash extends upwards a quarter inch along costa. The hind margin has a broad black border, dentated on its basal side. Within this border are a series of interspacial yellow spots. Inner margin orange.

Under side of both wings the same as upper surface, except that the coloring is not so brilliant.

Female.—Upper surface of both wings the same as male, excepting a fuller development of the markings. The yellow band of fore wing extends or curves downwards to near inner margin, forming almost a semicircle. There is also a white spot on margin at apex. The yellow spots of marginal area of hind wing are much more prominent, and a white dot appears on the margin at the end of each nervule.

Under surface of both wings the same as upper surface, except less brilliant.

Hab.—Suapure, Venezuela.

Taken in April, 1899. Not in British Museum, or other large collections.

Nymphidium quinoni sp. nov. Expanse 1.30 inches.—Head and thorax above, dark brown; beneath, white. Abdomen above, brown, slightly lighter than thorax; beneath, white. Antennæ dark brown, with somewhat lighter tip, and very minute white annulations at base of each joint. Legs white.

Fore wings above, creamy white, excepting the costal and hind marginal areas, which are light brown, with darker markings and spots. The brown of the costal area is well developed, covering nearly all the discoidal space, darker at costa than below. In the discoidal space close to the base is a black dot; beyond this, near centre of discoidal space, is a large black spot; at the end of discoidal space is a black line, and this line, with a little of the surrounding brown area, extends downwards into the creamy white ground color, forming a knob more or less prominent. The apical and hind marginal areas are light brown, edged with darker brown on the basal side. Down the central part of the brown hind marginal area runs a line of interspacial black dots. The hind spots bear a dark border distinctly touched with white at end of the first and the lowest submedian interspaces. Inner margin creamy white.

Upper side of hind wing creamy white. The hind margin has a generous brown border, a continuance of the same on the fore wing and identical in every respect, including the interspacial black dots, the marginal white markings, etc.

The under side of both fore and hind wings is the same in its markings as upper surface, but the white lacks its creamy tinge, and the marginal border is nearer mouse color than brown. The colorings of upper surface are repeated but decidedly deadened, and this deadening of under surface color is too well known to need any detailed description.

The interspacial dark marginal spots are more prominent, owing to the lighter back ground. The dark edging of the hind margins is also more noticeable, and the white marginal spots of upper surface are much more prominent.

Hab.—Suapure, Venezuela.

Variations.—Barring variation in size, the colorings in various specimens seem much the same. The greatest variation is in the "jutting" of the brown costal area into the creamy white ground area of fore wing, noted above as near end of discoidal space. The density of the brown of marginal border also varies.

Taken in November, 1899. It resembles quite closely *N. pelops* Cram.

Carystus richardi sp. nov.—Expanse 1.30 inches.—Head and collar bronzy brown. Antennæ black. Club black above, brown beneath. Thorax above, dark brown, with some dark gray hairs; beneath, white.

Abdomen above, dark brown, the segments edged with white; beneath white. Legs black above, brown beneath.

Upper side of fore wing dark brown. Below the median nervure and bordering on it, is a prominent semitransparent white spot, nearly square. Above this, and nearly joining it, is a small white dot in the discoidal space. At the bases of the two interspaces above this large spot are two smaller white spots in a line drawn towards the apex. Below the costa, two-thirds the distance to apex, are two small white spots, the upper one merely a dot. These make a total of six spots.

Upper side of hind wing dark brown. A dash of white, or rather a series of interspacial white marks, extends across the centre only of the wing in a line drawn from the upper angle to a point near the base on inner margin. This white area represents a small portion only of the total wing area.

Hind margins have a slight gray fringe.

Under side of fore wing the same as upper surface, except that below the large white spot is a space of similar size, heavily dusted with white scales, suffusing towards the hind margin. A similar, though less prominent, dusting of lighter scales appears outside the two subcostal spots.

The lower half of under side of hind wing is dark brown. Above a line drawn from upper angle across the lower edge of the white spots and ending near the base of the wing, the area is a creamy white, excepting the costal area, which is brown. The lower edge of this costal area is separated from the creamy white by a line drawn from base to upper angle, no suffusion whatever being apparent. In this creamy white area between the semitransparent spots and the inner margin is a dash of brown.

Hab.—Suapure, Venezuela.

Described from five specimens in my collection taken in January, 1900. The white markings show no variation. This species resembles *C. lafrenayi* Latr., but the white markings on hind wing are not so large, and in *lafrenayi* the direction is from upper angle downwards parallel to hind margin, not straight across the wing. The under side of hind wing differs in location and extent of white markings.

Pythonides hoyti sp. nov. Expanse 1.80 inches.—Head, thorax and abdomen above, dark brown, with golden brown hairs; beneath, light brown. Antennæ dark brown.

Upper side of fore wing brown. Across the discoidal space is a semitransparent spot of peculiar shape, straight on its basal side, but forked on its marginal side, forming a figure ⋹. In the first submedianint erspace is another similar spot somewhat nearer the hind margin. Above the upper point of this, in the interspace next above it, is a square spot.

In the apical area are three subcostal elongated semitransparent spots, the uppermost and lowest ones being a little nearer hind margin than the central one. Near base, about one-third distance to apex is an indistinct band of dark brown running from costa to inner margin. Another band runs across the two lower interspaces between the first band and hind margin. Below the subcostal spots is a dusting of dark brown. This, with the band last mentioned, suggests a band across the wing broken by the white spots and ground color at central portion of the wing, this partially developed band being continued on hind wing.

Upper side of hind wing brown, matching fore wing. The wing is crossed from costa to inner margin, by two darker bands, these being continuations of the bands of the fore wing. The basal and anal areas of the wing are covered with brown hairs, causing an apparant suffusion of the bands.

Both wings have a fringe of the ground color.

Under side of fore wing very light brown, excepting the costal and apical areas, which are darker. The spots of upper surface are repeated, also the dark bands.

Under side of hind wing very light brown, the hind marginal and basa areas being somewhat darker. The basal area is dusted with light brown scales. The dark bands of upper surface are repeated.

Hab.—Suapure, Venezuela.

The semitransparent spots closely resemble those on *P. lucullea* Hew.

Taken in the latter part of January, 1900.

Pamphila bobæ sp. nov. Expanse 1.10 inches.—Head, palpi, antennæ, thorax and abdomen above, very dark brown, nearly black; beneath somewhat lighter.

Upper side of fore wing dark velvety brown, with no markings, except very indistinct bands of a darker shade, noticeable only on close inspection. The first crosses basal area, the second the end of discoidal space, the third the hind marginal area. In the interspaces along hind margin is a series of similarly indistinct dark markings.

Upper side of hind wing very dark velvety brown, costal area somewhat lighter.

Under side of fore wing lighter than the upper surface, the dark markings being slightly more noticeable. The lower submedian area near base and entire inner marginal area are very light.

Under side of hind wing is the same as fore wing, the dark markings of fore wing being repeated. Owing to the very dark shade, these markings scarcely show on the upper surface.

Hab.—Suapure, Venezuela.

Taken in January, 1900.

Pamphila brooksii sp. nov. Expanse 2 inches.—Head and palpi, tawny brown. Thorax above, dark brown, with tawny brown shoulders; beneath, tawny brown. Abdomen above, dark brown; beneath white. Legs tawny brown. Antennæ dark brown, whitish at base of club. Club above dark brown; beneath dark brown, with whitish tip.

Upper side of fore wing dark brown. Costa tawny brown half way to apex. Basal portion of wing slightly dusted with tawny brown. Across the centre of discoidal space there is a prominent white spot. Below this, in second submedian interspace, is another spot, but nearer the hind margin; still nearer the hind margin, in interspace above, is a third white spot. These three white spots are of nearly equal size. Near the apex, extending from costa downwards are three small white spots, and a fourth one still farther down. Hind margin has a slight tawny brown fringe.

Upper side of hind wing dark brown; costa somewhat lighter. Hind margin has a slight tawny brown fringe.

Under side of fore wing nearly black, except the costal and apical areas, which are a rich tawny brown. The white spots of the upper surface are repeated. In the interspaces above the lower of the four apical white spots are two black specks, one above the other, showing a tendency to transparency at their centres. In the lowest submedian interspace, at its centre, there is a dusting of light scales. Hind margin is edged with a fine black thread.

Under side of hind wing a rich tawny brown, darker in marginal and basal areas. In the first and third submedian interspaces is a white dot just below the end of the discoidal space.

Hab.—Suapure, Venezuela.

Taken in the latter part of July, 1899.

RECENTLY the writer described a new species of the genus *Lichenochrus* from Costa Rica as *L. marmoratus* (Proc. Acad. Nat. Sci., Phila., p. 814, 1905). It has been found that Sjöstedt applied the same specific name to a very different species of the genus from West Africa (Bihang till K. Svenska Vet.-Akad. Handl., xxvii, afd. iv, No. 3, p. 32), and, as his name has considerable priority over my name, that of *Lichenochrus deciduus* is proposed to replace *L. marmoratus* Rehn.—J. A. G. REHN.

PSEUDORTHOSIA VARIABILIS var. PALLIDIOR n. var.—Expanse 40 mm.; anterior wings a warm but not dark reddish, more yellowish basally, with the stigmata dark, but the bands of the type absent, the two pale lines in the subapical field faintly indicated against a reddish background. Glenwood Springs, Colorado, in Mr. J. Mason's collection. I had taken it for a new species, but specimens from the northwest, kindly sent to me by Dr. Dyar, show that it is only a pale form of *P. variabilis*.—T. D. A. COCKERELL.

Description of two new genera and three new species of Aphididae.

By Theo. Pergande.

While examining a series of Aphids, received by the Bureau of Entomology of the U. S. Department of Agriculture, from Mr. S. I. Kuwana, of the Imperial Agricultural Experiment Station at Nishigahara, Tokio, Japan, I discovered among them a number of specimens of two highly interesting genera, one of which has been previously discovered on the Island of Java. These the writer takes the liberty of describing herewith.

NIPPONAPHIS n. gen.

This remarkable aphid, which is represented by a single species, resembles in venation and in the strongly annulated antennæ the genus *Schizoneura*, but differs from the latter in having antennæ which are only 5-jointed; the two basal joints short and subequal in length, the following three joints of almost equal diameter and strongly annulated; joint 3 is much the longest and longer than the remaining two combined.

Head, including the eyes, narrower than the thorax and broader than long, its frontal margin slightly convex. The two discal ocelli are placed in front of the eyes, and the third one at the middle of the anterior edge. Posterior tubercle of the eyes very small. Nectaries represented by pores only, and situated far back, apparently on the sixth abdominal segment. Tail short, broad, semicircular; last ventral segment notched at middle of posterior edge.

Third discoidal vein of the front wings with one fork.

Nipponaphis distychii n. sp.

The note sent by Mr. Kuwana is rather short and unsatisfactory; it reads as follow: "Head and eyes black. Prothorax dark purplish yellow. Dorsal aspect of meso-metathorax black. Abdomen dark purplish brown. Producing galls on the leaves of *Distychium racemosum* at Nishigahara, October 23, 1905."

The antennæ of the migrants—the only form sent—reach about to the base of the abdomen. The two basal joints, as usual, shortest and subequal in length; the first joint cylindrical and originating on the under side of the head; joint 2 slightly the stoutest and broadly rounded at the apex; the remaining three joints cylindrical and of almost equal thickness; the third longest, longer than the remaining two combined, being divided by from 41 to 44 rather deep annulations; the fourth longer than the fifth, with from 20 to 24 annulations; while the fifth is divided by from 11 to 15 annulations, its terminal spur short, stout and truncate at the apex, where it bears three or four short bristles.

Thorax about as long as broad and slightly broader than the abdomen. Abdomen elongate-ovoid, tapering posteriorly and furnished on each side with four slightly projecting blackish stigmata in front of the nectar pores. Legs normal and provided with sparse short hairs.

Wings pale dusky, with slightly darker shading along the veins; the costal cell and the stigma still darker, costa, subcosta and the veins blackish. The first two discoidal veins arise quite near each other and are rather far apart at the hind margin of the wing; the fork of the third discoidal is unusually long and narrow, while at least two-thirds of the stem of this vein is obliterated; in rare cases the fork is extremely short, while occasionally the third vein is simple as in *Pemphigus*. The stigma is long and lanceolate, with the stigmal vein arising about the middle, its basal half gently curved, the rest almost straight and terminating in front of the apex of the wing. The two discoidal veins of the hind wings are at least three times as far distant at the base as those of the front wings. The surface of all of the wings is rather densely scaly. Length of body about 2 mm.; expanse of wings about 7 mm.

TRICHOSIPHUM n. gen.

This is another abnormal genus and undoubtedly nearly related to the genus *Greenidea*, which was properly established by Schouteden for *Siphonophora artocarpi* Westw. Both of these genera agree in the very hairy nectaries, a character not observed in any of the other known genera. The principal differences between the two, in respect to the nectaries, are as follows: In *Greenidea* the nectaries of the migrant and of the apterous female, pupa, etc., are rather long, slender, almost entirely cylindrical, or slightly narrower at both ends and relatively of about the same length; whereas in the new genus the nectaries of the migrant are extremely long and cylindrical, while those of the apterous females are short, very stout and very distinctly fusiform. This diversity in the size and shape of these organs in the different forms justifies my opinion that

this constitutes a genus distinct from *Greenidea*, although closely related to it.

The characters of this new genus are: Antennæ of migrant as long or longer than the body, composed as usual of six joints, all of which, excepting the two basal, are furnished with long and bristle-like hairs, the third being longest. Front of head broad and quite straight; posterior tubercle of eyes bearing three ocelli. Abdomen sparsely hairy. Tail short and broadly triangular. Nectaries very long, almost as long as the whole body, cylindrical, straight, curving outwards towards the apex and profusely covered with long, bristle-like hairs. Venation similar to that of *Aphis*.

In the apterous female, the whole body, including the antennæ, nectaries and legs, is covered with stout hairs or bristles; head, etc., as in the migrant. Nectaries short, or about one-fourth of the length of the body, stout and distinctly fusiform; curved outwards.

Only two species exhibiting these characters are thus far known to me. The first of these represented by migrants, pupæ, apterous females and larvæ, was discovered by Dr. L. Zehnter, January 10, 1902, at Salatiga, Java, on *Anona muricata*. Following is its description:

Trichosiphum anonæ n. sp.

The material representing this species was, as usual, preserved in alcohol, and for this reason the original coloration has vanished. It appears, however, to have been yellowish green in the migrants, with the exception of the greater part of the abdomen above, which appears to have been brown.

Migrant.—Antennæ 6 jointed; the two basal joints, as usual, shortest and subequal in length, the first joint stoutest; joint 3 longest, longer than the spur of the sixth joint and but slightly shorter than the fourth and fifth combined, both of the latter subequal in length; all of these joints are furnished with rather long and stiff hairs; there are also from four to six small, transversely oval sensoria near the base of joint 3. The antennæ are slender and about as long as the whole insect.

Front of head quite straight, slightly indented about the middle, and furnished with about six long and slender hairs, while similar hairs are scattered over the upper surface of the head.

Head broader than long, and, with the eyes included, broader than the

prothorax. Eyes large, their posterior tubercle highly developed, each bearing three ocelli. The two ocelli on top of the head are placed close to the anterior edge of the eyes, while the anterior one is situated on the under side of the head.

Rostrum long, reaching to the abdomen. Prothorax broader than long and slightly broadest posteriorly, provided with a few lateral hairs on each side.

Abdomen about one-half the length of the body, its lateral edges quite straight, and broadest near the region of the nectaries, the terminal end broadly triangular, provided with sparse and fine hairs, which are still more numerous along the sides and on the last segment.

Tail short and broadly arcuate, bearing a small triangular projection at the middle of the external margin, its two sides being quite sharply serrate; each side bearing apparently four bristles, with a few smaller ones on its surface. The last segment is broadly semi-circular, and bears along its edge quite a number of still longer and stouter curved bristles.

Nectaries very long, almost as long as the whole insect, cylindrical, straight and slightly curved outwards toward the apex, and covered profusely with long and fine divaricating hairs or bristles.

Legs rather long and slender, provided on femora and tibiæ with stiff hairs. Front wings much longer than the entire body, the venation resembling more or less that of *Aphis* and *Callipterus*. The first two discoidals are distant at base and about seven times as widely separated at the apex; the first vein is almost straight, whereas the terminal one-third of the second vein is much curved toward the base of the wing; the third discoidal with its two forks resembles somewhat that of *Callipterus;* the basal half or less of this vein, or the stem of it, is obliterated; the stigma is long, narrow, parallel; stigmal vein gently curved and terminating at the apex of the wing. The hind wings are much shorter and much narrower than the front wings and have the usual oblique veins, which are quite straight, far apart at base, and more than twice as far apart at apex.

The pupæ have the body and legs much more hairy; the hairs of these parts are longer and stouter than in the migrant, while those of the tail and end of the body are shorter and finer. The upper side of the abdomen is marked with numerous pale brown spots of varying size, followed by a brown band, the latter divided at the middle, and itself followed by a very large spot between and touching the nectaries. In other respects, the pupæ resemble the migrant, excepting that the nectaries are not quite one-half the length of the body, and are also comparatively stouter and slightly tapering toward both ends. The triangular point of the tail is also somewhat longer.

Apterous Female.—Body pyriform, the head, pro- and mesothorax being narrowest, the rest of the body broadly oval. Front of head straight, or almost so, and destitute of frontal tubercles. Eyes of the usual size, their posterior tubercle prominent and furnished with three large and rather globular ocelli. Antennæ about two-thirds the length

of the insect; joints 3 and 6, including the spur, longest and subequal in length, each of them about as long as joints 4 and 5 combined; the fifth slightly longer than the fourth; all except the spur are provided with a few long stiff hairs or bristles. Tail and end of body as in the migrant; nectaries much shorter than in either the migrant or pupa, or only about one-fourth the length of the body, rather stout near the middle, tapering toward each end and curved outwards. Abdomen without spots, the whole body, including the nectaries and legs, profusely provided with stiff hairs or bristles, similar to those of *Chaitophorus*. Length about 1.4 mm.; diameter across the abdomen about 0.8 mm.

Trichosiphum kuwanæ n. sp.

Among the material of aphids sent by Mr. S. I. Kuwana, of the Imperial Agricultural Experiment Station, Nishigahara, Tokio, Japan, were found three parcels of alcoholic specimens of apterous females, larvæ and a few pupæ of this species, though none of the migrants. All were found living upon *Quercus serrata* on the 27th and 29th of June, and on the 2nd of August, 1905. Those taken in June are stated to be of a deep black color, whereas those obtained in August are said to be reddish brown. An examination of the entire material convinces the writer that all of them belong to the same species, which he herewith takes pleasure in dedicating to Mr. Kuwana.

This is, therefor, the second female, in which the nectaries of the apterous females are short, stout and fusiform.

Apterous Female.—Antennæ about one-half the length of the body; joints 3-6, including the spur, varying more or less in length in different specimens and frequently in the same individual; the third joint as usual is longer than the two following joints combined, the latter subequal in length. All of the joints, excepting the spur, are provided with long, stiff bristles. Front of head broad and quite straight. Eyes large, their posterior tubercle much elongated and bearing three large ocelli at the end; sides of the thorax quite straight, broadening more or less distinctly posteriorly, while the abdomen is almost circular in outline. The legs are rather long and stout, and like the rest of the insect, profusely covered with stout stiff bristles. Nectaries usually somewhat longer than the third antennal joint, or about one-half as long as the abdomen, stout, tapering toward each end and curved outwardly, covered with numerous long bristles and minute spines.

Tail short, broadly triangular, bearing a short triangular point at the centre of the posterior edge, densely covered with minute sharp points and furnished on each side with three or more long stout bristles. Last

ventral segment broadly emarginate. In the older specimens the coloration appears to be quite uniform, whereas in younger females, there are six irregular rows of large, oval or roundish dusky or brownish spots on the abdomen, interspersed with numerous smaller spots of two sizes, each of the latter bearing a slender black hair; there are also four large lateral spots in front of the nectaries, while the head and thorax are entirely of a dark color; there are also two pairs of dark spots on the meso- and metathorax, the anterior pair on each of these segments being much the smaller and transversely linear.

The larvæ are very much elongated, their lateral margins quite parallel; the body is also more or less distinctly spotted, and the hairs of the abdomen are rather long and slender. Nectaries short, about the length of the posterior tarsi, stout at base, elongate-conical, not reaching to the end of the abdomen; just behind each of them is a stout and conical, lateral tubercle, about one-half the length of the nectaries, bearing at the apex a long, slender, backwardly directed bristle, while a similar though smaller pair of tubercles is situated at the posterior margin of the following segment. The last dorsal segment is broadly triangular.

The pupæ are spotted similarly to the younger apterous females, and are also very hairy, though the nectaries are longer, quite slender, though still somewhat fusiform.

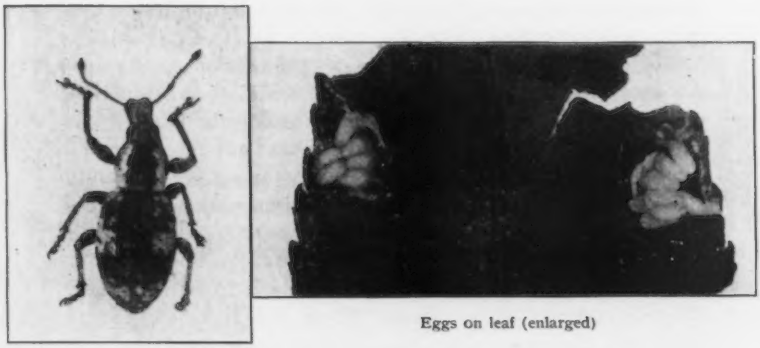
Texas Notes—I.

By E. Dwight Sanderson.

1. *Omileus epicæroides* Lec.—A snout weevil injurious to peach foliage. Injury by this species to peach foliage was first called to our attention by two correspondents in East Texas early in March, 1904. The beetles were reported as seriously injuring the foliage of young peach trees. The same insect had done similar injury the year previous. Examination showed them to be wingless, and their control therefore appeared simple. The insects seemed most numerous during the first ten days of April. Visiting Dialville, in the heart of the peach belt, on April 29th, we found them still abundant. The foliage had been eaten much as by *Lachnosterna*. The sexes had been mating for some time. The beetles were shaken from the trees with great difficulty so that jarring was not feasible. They were noticed most commonly on tender sprouts from oak stumps. It developed that they were injurious almost entirely on or adjoining newly planted orchards on land just cleared off and surrounded by oak. It seems to us

evident that the normal food plant is oak. A band of "tanglefoot" was placed around the trunks of several trees at evening, as the beetle seems to feed at night mostly, and several beetles placed at the bottom of each tree. Out of eight, three were found covered with the sticky mixture at the base of one tree and none upon it. There is, no doubt, that such a band placed on trees about March 1st will entirely protect them. Where they are already upon the trees, thorough spraying with strong arsenate of lead or Paris green, one-half pound per barrel, was reported as effective.

The habits of the weevils seem to be much like those known of the imbricated snout weevil (*Epicærus imbricatus*), which



Eggs on leaf (enlarged)

this weevil quite closely resembles. The eggs are laid upon fallen foliage or rubbish, the leaf being folded over them, in bunches of from two to nine, thirty-five averaging four each. While ovipositing the females remain mostly upon the ground, feeding but little, while the males are in the trees and occasionally descend to them. In no case were they observed going into the loose soil. Two females laid 50 and 60 eggs. The eggs hatch in from three to eight weeks, averaging about a month, hatching mostly about the middle of May. The larvæ feed upon roots, probably of the oak, but we were unable to rear them.

This species was first described by LeConte and Horn in

their Monograph of the Rhyncophora from Texas, 1876; since then we have seen no published record of the species as of economic importance.

The close resemblance of this speciee to our common imbricated snout beetle (*Epicærus imbricatus*) led the writer to question whether or not it too might be wingless, in which case the same means of control would obviously be available. No description of the wings could be found, or any mention as to whether they were functional or not. Mr. E. A. Schwarz of the National Museum, therefore, kindly examined some specimens at my request and writes me: "I have examined several specimens of our common *Epicærus imbricatus* and fail to find any trace of hind wings. Moreover, the elytra are connate, the humeri absent and the metasternum short, all characters indicating a wingless genus. Dr. D. Sharp, in the Biologia Centrali-Americana, divides the family Otiorhynchidæ into two divisions, the winged ones and the wingless genera. The genus *Epicærus* is placed among the latter." So there is still something to be learned about our most common beetles. Lacking wings, the imbricated snout beetle should also be readily controlled and kept from ascending fruit trees by means of sticky bands around the trunks.

2. The Texas Grape Fidia (*Fidia cana*). Specimens of this leaf beetle were received May 17, 1904, from D. Garner, Dripping Springs, Hays County, Texas, who reported them to be ruining his grape crop. May 29th he wrote us: "The first I knew of it, it was riddling the tender leaves before the vines bloomed. As soon as the fruit was set they were at work upon it. When we spray our vines they get inside of compact bunches and bite the berries near the stem. They appear to have the trait of 'sulling' or dropping to the ground as does the curculio." Specimens of their work sent showed the leaves badly eaten, and the berries gnawed exactly as is done by the grape root-worm (*Fidia viticida*) of the east. So far as recorded, *F. cana*, as we determined the insect, is peculiar to Texas, and it seems probable that it may prove equally troublesome to grape growers there.

3. The Southern Corn Root-worm (*Diabrotica 12-punctata*

Oliv.). The larvæ of this beetle caused considerable injury to young corn early in April, 1903, through central Texas. In the worst injured field at College Station, the larvæ were found working upon the roots of Johnson grass, where they seemed to be older than on corn. About one-third of the hills of corn were killed and a considerable acreage was replanted. Several nearly full grown larvæ were placed in breeding cages and pupated about April 29th. One beetle emerged from these May 12th.

January 16, 1904, the adults were found very numerous upon alfalfa. Females of this lot examined had well-developed eggs. They were again destructive to garden stuff, especially snap beans the first week in April, but the larvæ did not do much injury to corn. The adults of the second generation were numerous May 6, 1904. (For the best account of this species on corn in the South, see Quaintance, Bulletin 26, n. s., Div. Entomology, U. S. Dept. Agr., p. 35).

I THINK the editors of ENTOMOLOGICAL NEWS should be proud of their journal. I notice the April number has four full plates and 15 to 20 text figures. Is there any entomological journal published at twice the price that can beat that? Aldrich's plate is a work of art.—E. B. WILLIAMSON.

OPHISMA TROPICALIS Guenée, in Fairmount Park.—I exhibited this moth at a recent meeting of the American Entomological Society, not having determined it. Mr. William Beutenmuller who was present at the meeting wrote me a few days after as follows: "The strange Noctuid from Fairmount Park, exhibited at the last meeting of the Society, is *Ophisma tropicalis* Guenée. The species is subject to considerable variation, and we have one specimen from Jalapa, Mexico, in our collection, almost exactly like it. We also have specimens from Coatepec, Mexico; Aroa, Venezuela and Rio Janeiro, Brazil." The "Biologia" gives the following distribution: Panama, Colombia, Guiana, Brazil, Cuba. The moth was captured by Mr. Herman Hornig on the evening of August 5, 1905. He gives the following account: "It was caught at Chamounix, Fairmount Park, Philadelphia. The flight of the moth is similar to that of the Sphingidæ, the wings supporting the body while feeding, the food in this case being well fermented molasses. It was caught about 8.10 P.M." It is difficult to tell whether the moth was only an accidental find, brought here by commerce, or whether it has obtained a foothold like the big Mantid, *Tenodera sinensis*.—HENRY SKINNER.

Notes on Mosquitoes.

By Dr. S. E. Weber, Lancaster, Pa.

(Plate X)

Culex pipiens Linnaeus.

This domestic species which loves human habitations, and is found throughout the greater portion of the civilized world, is the commonest mosquito about Lancaster and other localities in Pennsylvania. It is still looked upon as breeding in rain barrels or any other receptacle containing fresh water, but I have long known this species and most of its varieties and some closely allied forms, as barn-yard mosquitoes breeding in manure water. In the plate is shown a typical breed-place, where a sufficient number of eggs were deposited every day during the season to more than supply each inhabitant of the city with a mosquito of this species alone, aside from the more dangerous species of *Anopheles* and others. The observations made in this combination of neglected door yards and manure yards for three stables during the summer of 1904 and 1905 show the percentage of adults produced from a certain number of eggs deposited to be sufficient also to supply the eastern section of Pennsylvania with *C. pipiens* mosquitoes.

In one yard was found a nest of 3 rain barrels, in the other were two, making 5 rain barrels, 3 manure piles, 3 water closets and some tin cans, agate-ware pots, etc., containing water with larvæ. In the left hand corner of the stable yard is shown a portion of a manure pit containing water from which a one gallon dip, taken last October, brought over 2000 *C. pipiens* larvæ, which furnishes an idea of its contents. The water in one of the rain barrels when first seen was so packed with larvæ that for over one-half inch from the surface it was about the consistency of gelatine. One of the most interesting facts with reference to the breeding habits in the rain barrel as compared with the manure water is the choice of the various species or varieties of species under the shield of *C. pipiens*. In the number of larvæ mentioned there were 14 distinctively characterized species, which resulted in five separate forms of adults which were not found breeding in the rain barrels so close by.

A TYPICAL BREEDING AND HIBERNATING PLACE FOR MOSQUITOES, COPROPRAGUS FLIES AND PSOCIDÆ IN THE CITY OF LANCASTER, PA.

The first appearance of *C. pipiens* in the season of 1905 was noticed in the evening of April 14th. In 1906 it appeared April 17th; the first deposit of eggs was made April 21st—2 masses—hatched April 28th. Three masses of April 28th hatched April 30th; on the latter date 4 masses were deposited; May 2nd, 10 masses; May 3rd, 17th and May 14th, 33 masses in one rain barrel. Let us note the egg deposits in one barrel throughout the season of 1905: On May 9th (the first deposit), 2 masses; May 10th, 10 masses, then more or less every day, and a few cool days no deposits. In June the highest number deposited was 16 masses. In July the number reached from 18 to 30, and in some prolific depositing periods through the month of August, 34 were found. A count of 34 masses, September 10th, showed 6962 eggs as the deposit of a single night; October 1st, 26 masses, 6554 eggs; October 2nd, 38 masses, 6525 eggs. Egg laying now decreased to 6 or more masses, some days none, and on a warm day, as October 10th, 21 masses—4429 eggs; no more deposits from that on to October 15th, 23 masses; then October 17th, 12 masses; October 20th, 4 masses; October 25th, 6 masses. No eggs were deposited from the last date until November 1st, 7 a.m., 1905, which was the last deposition of the season, and was made in a bucket containing manure water. The last deposition which took place in 1904 was 2 masses on October 31st.

The time of egg laying changes with the stage of the season. Most of it is expected in the early morning hour. In spring it does not occur as early as in mid summer, in the latter part of August it is already at about 6 a.m. that the last depositions are noted, and by the closing of the season 7 a.m., and a deposition has been found as late as 10 a.m. in the latter part of October, but at no time have I observed any deposits in day time during the summer.

The minimum duration of the entire life round for *C. pipiens* as observed during the month of July was eight days and nine hours. This is possibly the shortest period on record for this species. The mass was composed of 392 eggs and was remarkable for its percentage of production, which was 365 adults—159 males and 206 females, and still more remarkable is the

fact that they were bred in a rain barrel which had been recently used for petroleum. The atmospheric conditions and environment are the main features in the different stages of the life history, which varies greatly according to these influences. This species is possessed with a high degree of tenacity, as shown by experiments which can not receive mention here. Its power of resistence to cold is unusual. In a collection of 26 masses of eggs, October 12, 1904, 12 masses hatched October 15th; 5 more hatched on October 18th, and the rest became water logged. These larva were kept for winter observation. On the morning of November 1, 1904, a rain barrel was found frozen over, the ice being about ½ inch thick, with the larvæ imbedded and apparently lifeless. Some were taken in the house and thawed out, while others were left in the barrel to thaw out through the day. Of 100 larva so treated only 3 were found dead, which was apparently due to injury between the cakes of ice. The other larvæ in the same barrel seemed not affected, more than a check to their usual activity. On November 12th the barrel was again frozen over and 57 larvæ were taken out, which were solidly imbedded in ice; after thawing out, 5 were dead from injury, and the balance were as lively as before. The larvæ now diminished in numbers. Through flooding of the barrel the remainder were lost. Of the 52 taken from the barrel after being frozen twice, twenty were found dead November 15th. From November 17th to 22nd there were 9 pupations: 1 on the former and 5 on the latter date, though first issues were November 24th, 1 ♂ and 1 ♀. The last issue occurred December 12th, with a total of 14 adults, 7 ♂ and 7 ♀, after being frozen twice. This is not the least this species or varieties of the same will endure since I have made numerous other observations, and in some instances they have even been allowed to freeze in ice from three to four times in larval and pupal state, and have come to maturity. In one instance a particular variety of a generation hatched September 25, 1905, 305 larvæ were entirely frozen in ice on the nights of November 2, 3, 11 12 and 13; for the first four days they were thawed out by noon of each day, but on the last day of freezing remained in the ice

for over 24 hours. After all these hardships the larvæ were lively, and were now taken indoors, but in a few days most of the number died. A small number survived, which pupated, and by December 9th 1 ♂ and 1 ♀ issued; after being perfectly dried up in a bucket for one week 15 larvæ were found dead, and from 7 pupæ in the same condition issued 3 ♂ and 4 ♀ on December 16 and 17, 1905. The same is practically true of another generation of a different variety of the same species, which was allowed to go through the same process at the time.

The last larvæ from masses of October 12, 1904, died February 14, 1905. The last larvæ and pupa, which died and were from the season of 1905, were from eggs deposited October 9th in the evening, and hatched October 14th, died March 10, 1906; this extends the period of prolonged larval existence to almost 5 months. This is not only a feature in winter, but may occur in regular season, when, from want of food, larval life may be extended 4 or six weeks and over.

Some of the species associated with *C. pipiens* in rain barrels of the yards in question were *C. restuans* Theo., *C. territans* Walk., *C. salinarius* Coq. and *Anopheles punctipennis* Say.

Observations of extremely interesting character, with reference to larvæ and adults, is a record of 50 egg masses of *Culex pipiens*, including the study of antecedents and progeny. The total number of eggs was 15,056, which, under various conditions, produced 7959 adults, of which 3984 were males and 3975 were females.

(To be continued)

A New Cantharis.

By Henry Skinner.

Cantharis pilsbryi n. sp —Black, shining, head with a red spot in the centre; sides of thorax red. Head convex and shining, with but few punctures, hind angles obtuse. Thorax nearly round, slightly convex, with few punctures. Elytra moderately robust, black, feebly shining. This species is of the same size as *deserticola*, and the elytra have practically the same character of reticulation. The red spot in the centre of the head and the red sides of the thorax distinguish it from the other species. Length 22 mm.

Described from five specimens taken by Prof. H. A. Pilsbry at High Bridge, Pecos River, Texas, April 27th.

A New Method of Preparing Wings and Other Parts of Insects For Study.

By W. V. Tower, B. S., Amherst, Mass.

In Entomological News for January, 1905, page 28, there appeared a note referring to some mounts of Lepidoptera prepared by Dr. P. P. Calvert to show the venation of the wings. For this purpose he used a ten per cent. solution of caustic potash as a bleaching agent, after which the wings were washed and then stained in a watery solution of Bordeaux red for twenty-four hours. Upon removal from the stain they were washed, floated onto cards and allowed to dry.

Several trials of this method failed to give satisfactory results, and, thinking there was a chance for improvement, a number of experiments were carried on at the Entomological Laboratory of the Massachusetts Agricultural College, which gave the following results:

Methods.

1. Place the wings to be bleached in a crucible partly filled with hydrogen peroxide and cover; boil until the scales are thoroughly bleached, then wash in water and then in seventy per cent. alcohol fifteen minutes in each. While the wings are washing smooth out with a fine camel's hair brush to loosen many of the scales and render the wings more transparent. After washing, stain from one to three hours with cyanin, gentian violet, Bordeaux red (six hours in this case) or rosaniline, then remove and wash for fifteen minutes in fifty per cent. alcohol and thirty minutes in water. At this point thorough washing is very important as air bubbles and more or less surplus stain have worked in between the two membranes of the wing. These can be removed by pressure with a camel's hair brush, gently forcing them out at the base of the wing. It is a good practice to repeat this washing; then mount in glycerine jelly.

2. Balsam mounts. Bleach with hydrogen peroxid as above, then wash in water and in fifty per cent. alcohol, fifteen minutes in each; remove and stain in cyanin for two hours, then wash in fifty, seventy and ninety per cent. alcohol, ten minutes in each, removing surplus stain and air bub-

bles, as explained above; then clear in oil of cloves and mount in xylol balsam.

The time required for treating wings by this method is the same as by the last, and the results are equally good.

3. Unstained mounts. Wings to be mounted without staining should be bleached with hydrogen peroxid as already described. After washing in water and removing the air bubbles, mount directly in glycerine jelly.

Wings treated by this method cannot be successfully photographed, whereas excellent photographs can be obtained from wings prepared by the first two methods.

Either of these methods require less time than that described by Dr. Calvert* or by the use of the Labarraque solution, and the venation resulting is more distinct.

Hydrogen peroxid of three per cent. strength is prepared by many wholesale drug houses, and various trade names are used for the product, but all of these preparations which were tried gave equally good results. As this substance when warm oxidizes metallic instruments it is advisable to use a wooden lifter in transferring the wings or other parts treated from one medium to another.

Although the stains already named have given the best results, the following have been tried: Cyanin, rosaniline, gentian violet, Bordeaux red, erythrosin, safranin, acid fuchsin, paracarmine, Grenacher's borax-carmine, Delafield's hæmatoxylin, Ehrlich's acid hæmatoxylin, Delafield's borax-carmine, methyl blue, orange G, analine hydrate chlorid and silver nitrate. Wings prepared and then stained with cyanin, rosaniline or gentian violet are excellent for immediate study, while those stained with Bordeaux red, erythrosin or safranin make good mounts from which to obtain photographs.

Hydrogen peroxid has also proved useful to bleach the antennæ, legs and mouth parts as well as the wings of Hymenoptera, and fuliginous wings of other insects are rendered much lighter by its use, while the tearing often caused by boiling such parts in potash seems to be avoided in this method of treatment. The bleaching proceeds faster after the peroxid has been boiled down somewhat, thus becoming more concentrated.

* [It should be noted that my method was devised for a special need for *dry* mounts.—P. P. CALVERT.]

A New Sawfly.

By T. D. A. Cockerell.

A nematid sawfly has attracted attention by its appearance in the streets of Boulder this spring, being one of the earliest insects on the wing. As it does not agree with any described species, a description is offered:

Pteronus arapahonum n. sp.

♂.—Length about 7 mm.; anterior wing 6⅔. In Marlatt's table (Revis. Nematinæ, p. 44) it runs near to *P. ribesii* Scop., from which it differs in the coloration of the thorax above, the mesothoracic plates being solid black, the long third cubital cell, etc. Head and mesothorax shining black, the latter minutely but distinctly punctured; triangular mark between antennæ, and broad anterior margin of clypeus (which is broadly but shallowly emarginate) reddish yellow; base of mandibles and labrum (which is quite large) dull whitish yellow; orbits dark, except a minute reddish spot at the top of the eyes; antennæ reddish yellow beneath and black above, the colors sharply contrasting; joint 4 a little longer than 3; scutellum except a large spot at base, postscutellum, lobes of pronotum, and most of upper half of epimeron, reddish yellow; lower half and more of epimeron entirely black; legs light reddish yellow, the coxæ, trochanters and bases of femora yellowish white; apex of hind tibiæ, and their tarsi, blackened; wings hyaline (a little dusky), iridescent, the stigma (which is very large and broad) and nervures black; transverse costal nervure only slightly oblique and about half as far below basal as basal is before first cubital cell; third cubital cell much longer than its apical breadth; second r. n. almost as far from base of third cubital cell as the breadth of the base of latter; upper discal cell of hind wings surpassing lower at the point of junction; abdomen reddish yellow, the two basal segments more or less infuscated; apical part of sheath black; claws strongly bifid, the teeth parallel and about equal.

Var. a.—Middle of scutellum infuscated; light color on epimeron reduced to a transverse mark; third abdominal segment slightly infuscated in subdorsal region.

Var. b.—Transverse costal nervure only a short distance before basal.

Var. c.—Third cubital cell much higher, especially at base.

Hab.—Boulder, Colorado, April 6th (T. D. A. Cockerell); April 15th (W. P. Cockerell); April 10th (S. A. Rohwer).

The Rev. C. J. S. Bethune has been appointed professor of entomology at the Agricultural College at Guelph, Ontario, Canada, to which place all communications should be sent.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., JUNE, 1906.

Apart from the general loss of life and property brought about by the earthquake in San Francisco, entomologists have doubtless been especially interested in their brethern and coworkers in that unfortunate city and anxious to know how they fared. These questions are as well answered as may be at the present time by Dr. Van Dyke in another part of this issue. All did not fare alike. To the fortunate ones we send congratulations, and to the others our profound sympathy for what they have lost.

We would like to be of aid to those who have lost not only their collections and books, but property and employment. We therefore ask our subscribers to aid in helping those that suffered most. We will gladly receive subscriptions to be transmitted to entomologists, and will make a proper distribution of any money entrusted to us. The names of donors will be published in the NEWS, but not the amounts subscribed.

BULLETIN OF THE BRITISH COLUMBIA ENTOMOLOGICAL SOCIETY.—The first number of this quarterly has appeared. The formation of this Society and the publishing of its Bulletin show very commendable enterprise. The officers are as follows: President, G. W. Taylor; Vice-President, T. Wilson; Secretary, R. V. Harvey. There are at present 21 members.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

THE entomological laboratories and collections at Stanford University suffered practically no injury from the recent earthquake in California. The Stanford buildings, which were wrecked, were the arch, church and new museum, library and gymnasium, the latter two being in course of erection. The various quadrangle buildings, dormitories, etc., were only slightly injured. University work will begun again on August 23rd, the regular date for the opening of the next college year.—VERNON L. KELLOGG.

EARTHQUAKE AND FIRE NOTES FROM SAN FRANCISCO.—I have been collecting, as best I could, all information pertaining to the losses sustained by our local entomological fraternity, with a view to having it published in the ENT. NEWS.

From the Academy there were saved simply the boxes containing the types of the Coleoptera, Hemiptera and Hymenoptera. All else in our department was lost. The Behr collection of Lepidoptera, our general collection of insects, including all our types of Odonata, Arachnida, etc., and our entire library.

Of private collections, the greatest loss was that sustained by Mr. Chas. Fuchs, he having saved only about twenty-two boxes of specimens, these consisting of his generic collection of Coleoptera. All his books, I think, were burned. Mr. James Cottle lost his entire collection of Lepidoptera and all except one or two of his books. The Beverley Letcher collection of Lepidoptera and Coleoptera and the library, which was stored in Mr. Cottle's house, was also destroyed. I have heard that Mr. J. C. Huguenin lost his collection. That would leave the collection of Mr. F. X. Williams, which was in the unburned district, as the only good collection of Lepidoptera in the city. The owner is still away on our Galapagos Island Expedition, where he is, according to recent letters, doing splendid work. Dr. F. E. Blaisdell had one of his two cases of Coleoptera overturned by the earthquake. This of course resulted in the mangling of many of his specimens. All specimens of *Eleodes* loaned to him for purposes of study, were uninjured. The collection of Coccidæ belonging to Mr. E. M. Ehrhorn, was, so far as I could learn, unharmed. My own collection of Coleoptera was also unharmed. I simply lost all that was in my down-town office.

As a whole, our greatest loss will be our libraries, every big one in the city being burned. The Academy of Science simply saved its records, about one set of its own publications, and six other volumes. Our good friends among the scientific institutions of the country could therefore be of great assistance to us if they would reserve as complete a set of their publications as possible for us until the time when one will have a proper

place to deposit them and our finances in condition to begin purchasing them. For some time we will have to depend upon the libraries of our two universities.

This has been a tremendous blow to us all and rare is the person who has not lost something. First was the earthquake, which, though causing the loss of a great many lives and much destruction, would not have been greatly noticed. It was the fire that did the great damage, destroying all of the city, except a mere fringe of residences. Dr. Blaisdell and I were fortunately in this belt. The Academy was so much injured by the earthquake that it was only with the greatest difficulty that what few things were saved could be gotten out. Our Director, Mr. Loomis; our Botanist, Miss Eastwood; and our Librarian, Miss Hyde, did what they could.

The loss in valuables, such as books, pictures, bric-a-brac, records, etc., has been tremendous, for San Francisco was a wealthy city, and had many priceless things stored in both public and private places. Of historic places we saved but two, the Museum Dolores and the U. S. Mint. The Pioneer Hall, with its old records and historic relics is a ruin. Fortunately the H. H. Bancroft Library of Early California Records, a priceless library of its kind, now belonging to the University of California, was saved. All other libraries were burned; the Sutro with about two hundred thousand volumes, particularly rich in Shakesperiana and Fifteenth and Sixteenth Century books and manuscripts; the Public, the Mechanics-Mercantile, the Library of St. Ignatius College, where were stored many very valuable original manuscripts, all law libraries, and the library of our own Academy. In the latter, we calculate that we had about twenty-five thousand dollars' worth of books which cannot be duplicated.

There was, fortunately, a great deal of money stored in the Mint and in our banks, which will soon be available. This will enable our business people, who are working like trojans, to begin on the work of rebuilding, almost immediately. In a few years our city will be fairer and almost as extensive as ever. It will always be great to those who love it, and though it may secure many new valuables, will I fear never have again many of the things that some of us knew it possessed.

The conditions now are somewhat like those in a bristling frontier settlement. The streets in the unburned districts are crowded, signs are everywhere, big firms doing business from stores that were formerly small stock ones, from private residences, or from counters in vacant lots; troops patrolling all districts night and day, while all cooking has still to be done in the streets, all of our chimneys being injured to such an extent as to make it dangerous to make a fire indoors. Many are being taken care of by our outlying cities and towns, and many have gone to distant relatives or locations. There are, however, a sufficient number whose interests or whose love is too great to allow of their leaving the stricken city. The blow, while falling heavily upon the wealthy, will cause most suffering among the small clerks, and next among the pro-

fessional people. Many of the latter lost their all and have been obliged to leave town. The mechanics and laborers will have more work than they can attend to. In fact, many of the laborers are better cared for than they have ever been before. This is due to the generosity of our good friends throughout the world. It enabled the rest of us to get our breath. Now retail stores are open, and we can begin to live somewhat as we could before.

Dr. Blaisdell will, I think, be able to remain in town and to continue his work as before. Mr. Fuchs cannot expect any work for some time to come from the Academy, but fortunately has his craft to rely upon. He saved his tools and is already, so I am informed, hard at work. He is still cheerful. For the benefit of those who wish to communicate with the burned-out ones, I will give the addresses that I have procured: Mr. Charles Fuchs, 2322 Bank St., Alameda, Cal.; Dr. F. E. Blaisdell, 1800 O'Farrell St., San Francisco; Mr. James Cottle, 2117½ Bush St., San Francisco; California Academy of Sciences, 1806 Post St., San Francisco.

None of our entomologists were injured and all hopeful for the future. To all good friends and well-wishers, please give our most heartfelt thanks.—Edwin C. Van Dyke, 2112 Steiner St, San Francisco, Cal.

Dr. Dyar's Square Dealing.—Readers of Ent. News who have seen a copy of the remarkable paper reviewed in the May number (page 181) will no doubt be interested to learn something about the circumstances which preceded its preparation and hurried publication. As soon as Mr. Busck returned from his collecting trip to the West Indies last fall, and turned over to me the specimens of mosquitoes collected, I at once began separating the larvæ and larval skins into species, intending afterward to associate them with the bred adults and then definitely identify the various species; in this way both the larvæ and the adults would have been identified with reasonable certainty. Dr. H. G. Dyar, however, to whom had been promised the immature stages of the mosquitoes for writing up for the Carnegie monograph, began to clamor for these, demanding that they be turned over to him *at once*, and so persistent and vehement was he in his demands that an order was issued directing me to immediately place this material in his possession. I was further instructed to prepare a provisional list of the bred adults, which I did, marking with a query those species that I was not certain of, and Dyar was instructed to correct this list, indicating those cases, if there were any, where I had confused two species under one name, etc., but this he refused to do. Instead, he prepared and hurriedly published the paper referred to, giving my tentative names but without a word of explanation in regard to their being only provisional, although well aware of the fact that they were so. Moreover, in several cases he has omitted the mark of interrogation, while in others he has craftily transferred it from the name of the species to that of the genus, thus intentionally giving the false impression that it was the genus and not the species that I was in doubt about.—D. W. Coquillett.

A NEW ENTOMOLOGICAL SOCIETY.—The Hawaiian Entomological Society was formed December 15, 1904, and the first meeting held January 26, 1905. The present officers are: President, R. C. L. Perkins; Vice-President, G. W. Kirkaldy; Secretary-Treasurer, Jacob Kotinsky; Executive Committee, Otto H. Swezey and D. L. Van Dine; Editors of the Proceedings, G. W. Kirkaldy and Otto H. Swezey. Volume I of the Proceedings (for the year 1905) has been issued. It contains important and interesting articles, mostly relating to the local fauna. We wish the new Society great success and prosperity.

AS STEMMED *polyphemus* cocoons are in order, your readers may be interested in my experience. I have been collecting about seven winters in Worcester and Amherst, Mass., and in that time have found on the average about two attached cocoons each season. All these, except one, were on white birches (*alba*, weeping, *populifolia* and *papyracea*). That one was on a swamp maple. Of these all, except one on *B. populifolia*, were accidentally attached, but that one had a regular stem like a *promethea*, but very weak and short. This experience seems just the reverse of Dr. Kunze's, as not one attached cocoon was on oak, or overhanging a street. On the other hand I have found caterpillars as common on such trees as the others. A few weeks ago I found a *promethea* on some cultivated bush with sessile leaves, which was made without a stem, but attached directly.—WM. T. M. FORBES.

ALL the material for my book "The Butterflies of the West Coast" in the hands of the publishers, including finished books, plates, stereotype plates, etc., all is doubtless gone up in smoke, and nothing saved except a few copies in my hands here. I have not yet had positive information from them, but as they were in the centre of the burnt district I have no hope of anything having been saved. The stereotype plates being lost, the book will not be reprinted.—W. G. WRIGHT.

DR. MCCOOK'S health is so far restored as to permit him to resume pulpit and platform duty. He therefor announces that he will accept engagements for special lectures, singly or in courses, in theological seminaries, universities, colleges, academies, private schools, scientific clubs and literary associations.

A list of subjects is appended for selection. An early correspondence is invited, which may be addressed to Dr. Henry C. McCook, Devon, Pa.: 1. The Home and Habits of American Ants. A general view of ant life (illustrated); 2. Mound-making Ants of the Alleghenies (illustrated); 3. Agricultural and Harvesting Ants (illustrated); 4. The Honey Ants of the Garden-of-the-gods (illustrated); 5. Carpenter, Cutting and Slave-holding Ants (illustrated); 6. Maternal Industry and Baby-life of Spiders (illustrated); 7. Trap-door Spiders—their Architecture and Enemies (illustrated).

Doings of Societies.

The 18th regular quarterly meeting of the Pacific Coast Entomological Society was held on November 18, 1905, at the residence of E. M. Ehrhorn, 2524 Filbert Street, San Francisco. President Fuchs in the chair. Fifteen members were present.

Prof. J. J. Rivers reported the taking of *Eudamus proteus* at Santa Monica, California.

Prof. J. M. Aldrich gave an interesting talk on Diptera.

Mr. J. G. Grundel reported a trip to the Santa Lucia Mts., in San Luis Obispo Co. He found that the Catocalæ about willows varied greatly in color and selected spots resembling their coloration; he wondered whether they were conscious of their color.

Mr. Fuchs determined some Coleoptera taken by Mr. Grundel, namely: *Cychrus convergens* var., *Cicindela oregona*, and *Pterostichus castaneipes*. He exhibited some Sesiidæ bred from blackberry, peach and wild cherry, and a species of *Satyrus* from San Luis Obispo County, a *Hepialus* sp., and Catocalæ from Alma, Santa Clara County.

Miss Julia Wright a box of exotic Coleoptera from Ceylon.

Prof. J. M. Aldrich a *Calotarsa* n. sp. from near Palo Alto, California.

The 19th regular quarterly meeting of the Pacific Coast Entomological Society was held at the Café Odeon, February 17th, 1906, No. 8 O'Farrell Street, San Francisco. President Fuchs in the chair. Twelve members were present.

Prof. J. M. Aldrich gave an interesting talk on collecting and mounting Diptera. He advised the use of the black Klaeger pins, especially size No. 1, also No. 2 for the larger specimens, too large pins should not be used. The pin should be passed through the thorax at centre or to one side, according to the value of the median bristles in classification. The cyanide bottle should always be kept dry within, and specimens should be collected singly and closely watched at the time for the purpose of learning their habits.

Dr. E. C. Van Dyke read two papers that may be epito-

mized as follows: He first dealt with the genus *Leptura*, particular reference being made to the species found in North America. He spoke of the fact that this, a Palæarctic and Nearctic genus of about 175 species, was represented in this country by about 75 species, several being undescribed, or about three times the number found in Europe.

Two exceptions to the general northern distribution mentioned were the two species from the highlands of Central Mexico. Mention was then made of the distribution of various groups of these and the relationship that the various members bore to each other. A careful study of the species he said brought out many interesting facts, one being that the Rocky Mountains alone supported no well-marked species—*Leptura nigrolineata* being considered at most a very weak one, though they did harbor several rather interesting varieties. The Sierras, the humid coast belt of the Pacific and the Alleghanies, each claimed one or more very distinct species. The Doctor considered that *L. quadrillum* was closely related to *L. veratrix*, and that *cubitalis* was not a *Leptura* at all but an *Acmæops* and closely related to *basalis*.

Later on in the evening he went over the species, and with the aid of the specimens from his collection and a number loaned by Mr. Fuchs to make the series more complete, pointed out many peculiarities. Of 47 West Coast species known to him, all but three were shown.

In the second paper an effort was made to show wherein the fauna of the West Coast more closely resembled that of Europe and North Asia, than did that to the east of the Rocky Mts. Mention was made of the statement made many years ago by Prof. Asa Gray, that the flora of Eastern North America as a whole was more closely related to that of the Japano-Manchurian region than was that of the west coast.

The insect fauna of the same regions was also found to bear a similar relationship. The reason the Doctor gave for this, was that the parts of the flora and fauna, which bore this close relationship, were as a rule restricted to low levels, where there was both plenty of sun and moisture. In past geological ages there was at northern latitudes a great area of comparatively low land which made it possible for both these areas

to gain their species from the same source. The West Coast could not get this fauna, because at that period it was barricaded at the north by great highlands, or else densely forested and quite cool lowlands, districts which the more sun-loving species would not penetrate. The mountains and cool-loving species of the Eastern Continent would here, however, find a congenial home, and as much as the mountain systems of the two Continents there came in close touch with each other, it was a simple matter that there should result a settlement of both regions with a related fauna. This is what no doubt occurred and it is with regard to this fauna—the fauna of the mountains and the cool lowlands, that the West Coast is more closely related to the Palæarctic than is that of the eastern part of this country.

In order to bring out this point the more forcibly, he gave the distribution of all the known species of certain genera of the Silphidæ, the list including the following: *Necrophilus*, *Hadrame*, *Pelates*, *Pteroloma*, *Agyrtes*, *Sphærites* (one of the Nitidulidæ, according to Ganglbauer), *Lyrosoma*, *Pinodytes*, *Platycholeus*. Later on, a box containing all of the American species of this group with the exception of *Pinodytes hamiltoni* was shown, a new species of *Pteroloma* among the number.

Dr. F. E. Blaisdell stated that considerable time had been spent on the Gyrinidæ, and that they needed revision. He also stated that he had taken a large series of *Gyrinus parcus* at San Diego, California, a species heretofore not credited to the State, but from Texas.

Mr. F. W. Nunenmacher stated that he had for exhibition a box of *Hyperaspis* arranged according to Casey's classification. *H. 4-oculata* appears as the western form of *undulata*.

Mr. Chas. Fuchs read a paper on a trip to the Fort Tejon region.

Mr. Nunenmacher exhibited two new species of *Hyperaspis*, and a series of *H. dissoluta* Cr. as an extreme form of *undulata*.

Dr. Van Dyke the Lepturæ of the U. S. illustrating distributional areas.

Miss Julia Wright a box of exotic Coleoptera.

Dr. Blaisdell a box of Californian Gyrinidæ.

F. E. BLAISDELL, M.D., *Secretary*.

A meeting of the American Entomological Society was held April 26, 1906. Dr. Philip P. Calvert, President, in the chair. Thirteen persons present.

H. W. Wenzel donated a collection of blind Carabidæ from caves in Austria.

A letter was read from Dr. C. Brunner von Wattenwyl, acknowledging his election as a corresponding member.

Mr. Henry L. Viereck made a communication on the nests of wild digger-bees. Dr. McCook found about two hundred such nests on his place at Devon, and Mr. Viereck made casts of about a dozen of these. They ranged from eleven to twelve inches in depth, and were mostly straight, with a lateral at the end. A cast and entrance of nest were exhibited and the method of making the former explained.

Mr. Rehn exhibited some new or rare Orthoptera, among them a new and large Phasmid from Tonkin, and a new *Mantis* from the Huachuca Mts.

Mr. Ilg exhibited a specimen of *Biston ursarius* new to him and taken at Philadelphia.

Dr. Skinner exhibited a new *Acmæodera* from the Huachuca Mts., Arizona.

Mr. Rehn spoke of the collection of Orthoptera made by Prof. Snow at San Bernardino Ranch, Arizona, and the interesting species found. *Stagmomantis limbata* and *carolina* were mentioned and the differences in their anatomy pointed out.

Dr. Calvert exhibited a section of a grass-hopper in which a malphigian tube passed into the dorsal blood vessel or heart. He also said he had kept a lubber grass-hopper (*Dictyophorus reticulatis*) alive in captivity for four months and two weeks. Mr. Rehn said the species had been found as far north as South Carolina. HENRY SKINNER, *Secretary*.

PROF. M. J. ELROD, in studying the Hesperidæ for his interesting work on the Butterflies of Montana (Bulletin No. 30, University of Montana), evidently used a revision based on male secondary sexual characters, as the figure called *Ochlodes sassacus* ♀ on page 156 is a Noctuid, *Melicleptria sueta* Grote. No doubt the table he followed ran out quite naturally to this moth.—HENRY SKINNER.

Mr. Roland Hayward.

Mr. Roland Hayward died suddenly at his home on Brush Hill Road, in Milton, Mass., on April 11th. He was born March 7, 1865, and was the son of Isaac Davenport and Mary Bartlett (Vose) Hayward, and was born and died, as did his father before him, in the house on the estate that had been owned by his family for eight generations. He was a member of the Harvard Class of 1886, though ill health in his senior year prevented him from taking the examinations for his degree.

He was for fifteen years a member of the Boston Stock Exchange, and senior partner of the firm of Hayward & Townsend, bankers and brokers, but a few years ago retired from active business, as his health was never robust and he wished to devote himself to scientific pursuits.

He was an ardent entomologist and possessed a fine collection of Coleoptera and an excellent scientific library. He was a member of the Boston Society of Natural History, which he joined when a boy, and was treasurer of the Cambridge Entomological Club.

He was a lover of nature and delighted in long walks in the woods and pastures about his old home. He was a man of the strictest integrity, and generous and loyal to his friends. He was not married, and leaves one brother, Dr. George G. Hayward, and one sister, Mrs. Henry W. Cunningham.

Mr. Hayward was particularly interested in the Carabidæ, and did important work in that family. His studies of *Bembidium* and *Tachys* are well known. He was a careful and conscientious worker. An important work on the genus *Amara* was just finished before he died. His large collection has been bequeathed to the Museum of Comparative Zoology, at Harvard College. His library will go to the Public Library, in the town of Milton, Massachusetts.

WANTED.—Help in procuring Pennsylvania insects and data or data alone of correctly determined species of Pennsylvania insects of all kinds. I desire name and locality and notes on food, enemies, habits and haunts, if possible, for publishing in a full list of the insects of Pennsylvania.—Address H. A. SURFACE, Economic Zoologist, Harrisburg, Pa.

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Wanted.—Bibionidæ of North America for which I will pay cash, also ENTOMOLOGICAL NEWS, Vol. XV, No. 9—W. A. Hooker, Bureau of Entomology, Washington, D. C.

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Wanted.—LeConte's "Revision of the Elateridæ;" also North American species of *Corymbites* and other Elateridæ and Buprestidæ.—C. O. Houghton, Del. Col. Agric. Expt. Sta., Newark, Delaware.

Wanted.—Vol. III, No. 1 "Papilio" and Vols. VIII and IX, Jour. N. Y. Ent. Soc., also Danaidæ of the world.—C. V. Blackburn, 101 Pine St., Woburn, Mass. (See Label adv.)

Wanted.—North American Philanthidæ for study. Will determine fossorial Hymenoptera for the privilege of retaining desirable material.—J. C. Bridwell, Baker University, Baldwin, Kansas.

Wanted.—Orchids plants or roots of them for cash or in exchange for brilliant exotic Lepidoptera, such as *Ornithoptera Urania cræsus, riphæus, morpho* and rare native species.—Chas. F. Timm, 170 Bleeker St., Brooklyn, N. Y.

Wanted.—Microlepidiptera, especially *Tineina* of North America. Will give named material in return; also Microlepidoptera and Coleoptera. Will buy desirable material.—Dr. W. G. Dietz, Hazleton, Pa.

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Wanted.—*Cicindela trilunaris, C. campestris*, and *Omus*, matured insects. Also pupae, larvae and eggs of North America *Cicindela.*—F. H. Goodfellow, Room 611, 42 Broadway, New York City.

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Lycæna exilis wanted in exchange for foreign Lepidoptera, or for cash. Will take a large number.—Denton Bros., Wellesley, Mass.

Wanted for Cash.—Transactions of the American Entomological Society, Vol. III (3). Will pay a fair price for a copy in good condition. W. C. Wood, 51 Fifth Avenue, New York.

Wanted.—For cash or exchange in any Order, specimens (living prefered) of any species of *Centhopilus*, also of any species of *Dermestes* (living prefered) —Frank E. Lutz, Cold Spring Harbor, L. I., N. Y.

Wanted.—Geometridæ from all parts of the United States. Will accept unidentified material. Will exchange or give cash for desirable specimens. Write first.—Wm. H. Broadwell, 209 Plane Street, Newark, New Jersey.

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